PEACE/WILLISTON
FISH & WILDLIFE
COMPENSATION
PROGRAM

BC hydro

BRITISH COLUMBIA

A Reconnaissance Survey Of Tobin Lake

A. R. McLean
1990

PWFWCP Report No. 95

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The Peace/Williston Fish & Wildlife Compensation Program is a cooperative venture of BC Hydro and the provincial fish and wildlife management agencies, supported by funding from BC Hydro. The Program was established to enhance and protect fish and wildlife resources affected by the construction of the W.A.C. Bennett and Peace Canyon dams on the Peace River, and the subsequent creation of the Williston and Dinosaur Reservoirs.

Peace/Williston Fish and Wildlife Compensation Program, 1011 Fourth Ave. 3rd Floor, Prince George B.C. V2L 3H9

Website: *www.bchydro.bc.ca/environment/initiatives/pwcp/*

This report has been approved by the Peace/Williston Fish and Wildlife Compensation Program Fish Technical Committee.

Citation: A. R. McLean. 1990. A reconnaissance survey of Tobin Lake. Peace/Williston Fish and Wildlife Compensation Program. Report No. 95. 21pp plus appendices.

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A RECONNAISSANCE SURVEY OF

TOBIN LAKE

WATERSHED:	Finlay River
DATE OF SURVEY:	August 28. 29. 1989
FIELD CREW LEADER:	D.A. Jesson
FIELD ASSISTANT:	A.R. McLean

PEACE FISHERIES COMPENSATION PROGRAM

B. C. HYDRO

ENVIRONMENTAL RESOURCES

and

B.C. ENVIRONMENT

FISH AND WILDLIFE BRANCH

REPORT PREPARED BY: A.R. McLean

RELEASED BY: _____

D.H.G. Ableson, Regional Fisheries Biologist

LAKE: Tobin

SYSTEM NAME: Unnamed C.

A.S.A.P. REFERENCE NO.: –

SYSTEM NO: –

DATA ON FILE FOR THIS SURVEY

Location	x	Dissolved O2/Temp. Profiles	x
Physical Data	x	Winter Dissolved 02/Temp. Profiles	x
Bench Mark	x	Netting Record	x
Terrain Features	x	Lake Catch Summary	x
Access	x	Individual Fish Data	x
Resorts and Campsites	x	Fish Preserved	–
Other Developments	x	Stomach Analysis	x
Obstructions and Pollutions	x	Scale Reading	x
Special Restrictions	x	Location of Inventory Sites	x
Aquatic Plants	–	Photograph Directory	x
Wildlife Observations	x	Appendices:	
Miscellaneous Comments	x	A: Water Chemistry Analysis	–
Lake Drainage	x	B: Tributary Stream Data	–
Fisheries Management Comments	x	Bathymetric Map Reduction	–
History of Previous Surveys	x	Bathymetric Map	–
Water Chemistry Summary	x		

LOCATION

Location:	135 km northwest of Mackenzie		
Elevation:	740 m +/-		
Latitude/Longitude:	56°20'08":124°10'45"	U.T.M.:	10.4272.62438
Management Unit:	7-37	N.T.S. Map No.:	94-C/8 (edition 1)

Drainage: Outlet C. --> Lafferty C. --> Williston Reservoir (Finlay Reach) --> Peace R.

PHYSICAL DATA

See Webber T. and B. Tupniak, 1981.

BENCHMARK

(Iron spike, center of red circle) Previously set benchmark (1981) located in a 32 cm diameter birch tree. Benchmark is now 1.13 m above present water level. An 87 cm rise in lake level is apparent.

High water mark: Lake is at maximum pondage.

Lake: TOBIN

TERRAIN FEATURES

Immediate Shoreline:

See Webber, T. and B. Tupniak, 1981.

The increased water level has flooded (approx. 2-5 m) previously "dry" shoreline vegetation making access to or from water difficult at these locations. However, boating in shallows and at survey access point has improved with the elevated water level. A fringe of Potamogeton sp. and water grasses extends up to 6 m into the lake.

Surrounding Country:

See Webber, T. and B. Tupniak, 1981.

Clearcut patches are visible to the southeast from the southeast corner of the lake. Tobin Lake is located in the sub-boreal spruce biogeoclimatic zone.

Lake: **TOBIN**

ACCESS

Directions:

From the weigh scale at the Ospika logging camp, travel northeast 12.8 km on the Finlay Davis Forest Service Road. Lake is located to the right. (Access to Ospika logging camp is by barge or air only).

Alternately, from the entrance gate at Fort Graham Lodge, travel 1.6 km to the Finlay Davis Forest Service Road. Turn right and proceed south 29.3 km to Tobin Lake. Lake is located to the left. Total distance from Ft. Graham Lodge (entrance gate) to Tobin Lake is 30.9 km.

Road Type and Conditions:

Finlay Davis Forest Service Road is a good, all weather, gravel two lane logging road.

Restrictions:

None.

RESORTS AND CAMPSITES

None.

OTHER DEVELOPMENTS

See Webber T. and B. Tupniak, 1981.
A trail is present along the north shore of the lake.

Lake: TOBIN

OBSTRUCTIONS AND POLLUTIONS

Beaver dams on the inlets and outlet appear to be barriers to upstream fish passage. Numerous.other beaver dams are present on Lafferty C., some of which appear to be barriers to upstream fish passage.

SPECIAL RESTRICTIONS

None.

AQUATIC PLANTS

See Webber, T. and B. Tupniak, 1981,

WILDLIFE OBSERVATIONS

2 loons

MISCELLANEOUS COMMENTS

An unidentified fish species (minnow) was observed in the pond created by beaver dam #1 on inlet #1.

A logging road now parallels the south shore of the lake.

Lake: **TOBIN**

LAKE DRAINAGE

General:

Tobin Lake has two inlets and one outlet. The outlet flows approx. 0.2 km west to Lafferty C. Lafferty Creek flows approx. 10.5 km northwest to it's confluence with Williston Reservoir (Finlay Reach).

Major Systems:

None.

Minor Systems:

Unnamed C. - inlet #1

The initial 1.1 to 1.2 km of this creek was investigated. Inlet #1 drains through a marsh area into the east shore of Tobin Lake. Beaver dam #1 (22 m in length by 1 m in height) is located approx. 600 m upstream from the lake. The dam is believed to have been blown and the creek rediverted to an old trappers cabin at one time. The dam has long since been rebuilt and flow is still present near the cabin (cabin no longer in use). A second beaver dam (4.5 m in length by 1 m in height) is located approx. 700 m upstream of the lake. Further beaver dams are located at approx. 850 m and 925 m upstream of the lake. This inlet has virtually no flow and a complete organic substrate, subsequently no spawning habitat is available.

Unnamed C. - inlet #2

This inlet flows 50 - 60 m from a small lake/swamp into the north shore of Tobin Lake. The inlet has a total vertical drop of approx. 2 m, an average wetted width of 36 cm and an average depth of 5 cm. No spawning or rearing habitat is present.

Unnamed C. - outlet

The lake level is controlled by a beaver dam (approx. 60 m in length by 1.5 m in height) located at the outlet (approx. 300 m downstream of the main lake body). Numerous beaver dams are located further downstream on the outlet C. This creek affords no salmonid spawning potential.

Lake: **TOBIN**

FISHERIES MANAGEMENT COMMENTS

Tobin Lake supports a population of rainbow trout and assorted coarse fish. A 25 hour net set and 2 minnow traps captured 2 rainbow trout and 3 different coarse fish species (redside shiner, lake chub, coarse sucker). Inlet #2 affords no spawning or rearing habitat. Inlet #1 and the outlet afford no spawning potential as a result of extensive beaver activity. The lake level is controlled by a beaver dam (60 m in length by 1.5 m in height) located at the lake outlet. Removal of this dam would concentrate the fish population into one area and seriously affect boating (see Webber, T. and B. Tupniak, 1981). Hydrogen sulphide was evident (> 5 mg/l) from a water sample taken at a depth of 30 m. Summer and winter oxygen results suggest that only the upper 7 m of the water column is capable of supporting a fish population.

This lake is suitable for a sportfish introduction. A piscivorous strain of rainbow trout could be considered as large quantities of minnows were captured during the investigation. In addition to the potential of gravel placement on inlet #2, the lake/swamp at the head of the inlet may be utilized to ensure adequate water supply for spawning at times of low flow. This could relieve a potential spawnbound condition and provide natural recruitment, should this lake be stocked. However, further detailed investigations are required to assess the enhancement potential of this inlet.

Post Survey Note: Tobin Lake was stocked September 18, 1989 with 17,000 rainbow trout (Dragon Lake Stock). Average weight was 1.09 grams.

HISTORY OF PREVIOUS SURVEYS

Lake Surveys:

Webber, T. and B. Tupniak, 1981. A Reconnaissance Survey of Tobin Lake. Report on file at B.C. Environment, Prince George.

Other Related Surveys:

A winter oxygen/temperature series was collected on February 27, 1990 by D.A. Jesson, Peace Fisheries Compensation Program, Prince George, B.C.

Lake: TOBIN

WATER CHEMISTRY SUMMARY **Limnology Station No. 1**

Field Conditions:

Date:	August 29, 1989		
Time:	1330 hrs	Air Temperature:	22.5 °C
Wind Velocity:	0-2 km/hr	Wind Direction:	northwest
Cloud Cover:	1/10 o.c.	Surface Condition:	flat
Secchi Disc:	3.9 m	Water Colour:	tannic

Method(s) Used:

Dissolved Oxygen:	YSI model 58 oxygen/temperature meter
Water Temperature:	YSI model 58 oxygen/temperature meter
Air Temperature:	Hand-held alcohol thermometer
pH (field):	Hach pH tester
H2S (field):	Hach H2S field test kit
Laboratory Used:	Zenon Environmental Inc. B.C. Laboratory Services
Water Sampler:	Verticle Alpha Water Bottle (Vandorn)
Substrate Sampler:	Substrate sample not taken

Water Sample Chemistry: SEAM Site No.: to be determined later.

	Sampling Depths			
	Surface (O m)		Lower (30.0 m)	
pH (field)	8.2		7.3	
pH (lab)				
Specific Conductance (lab)		umhos/cm		umhos/cm
Filterable Residue 105°C (lab)		mg/l		mg/l
H2S (field)	O	mg/l	> 5.0	mg/l

Bottom Depth:	36.0	m
Substrate Sample Depth:		m

Strong hydrogen sulphide odour noted.

Lake: **TOBIN**

DATE: August 28, 1989

SUMMER OXYGEN/TEMPERATURE DATA

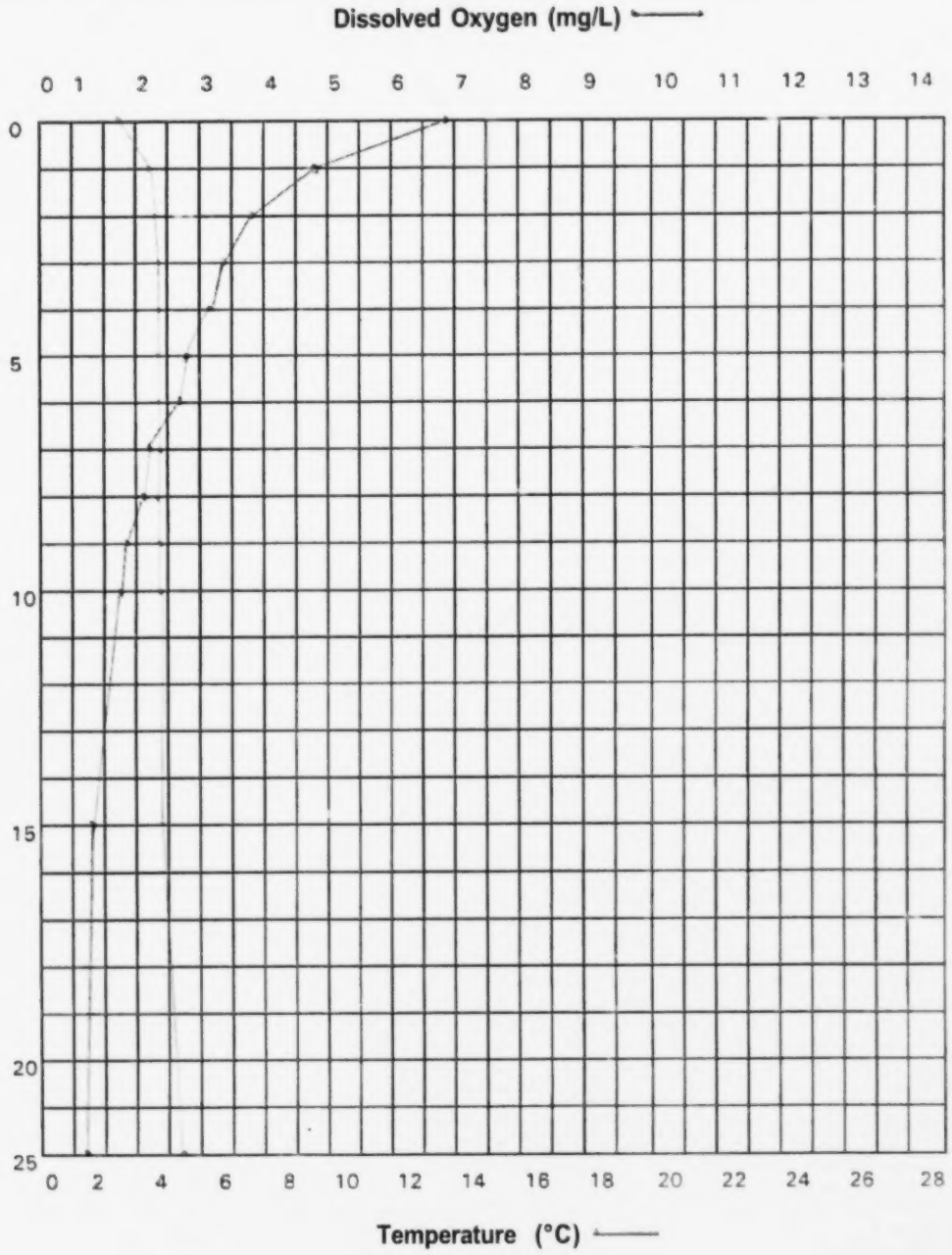
DEPTH (m)	02 (mg/l)	TEMP TO
Surface	8.7	18.9
1.0	8.7	18.0
2.0	8.9	17.8
3.0	9.0	17.7
4.0	9.1	17.7
5.0	8.4	17.5
5.5	7.1	17.0
6.0	6.4	16.9
6.5	3.7	14.0
7.0	3.5	12.5
8.0	1.4	9.7
8.5	0.9	8.7
30.0	Bottom	

NOTE: No readings taken below 8.5 m. This was done to avoid potential damage to the 02/temp sensor caused by hydrogen sulphide.

Lake: TOBIN

WINTER

DISSOLVED OXYGEN AND TEMPERATURE SERIES



Lake: **TOBIN**

Date: February 27, 1990
Time: -- hrs
Air temp.: 0 °C
Wind:

Crew: D.A.Jesson/B.Westcott
Snow depth: 5 cm
Ice Depth: 100 cm
Weather:

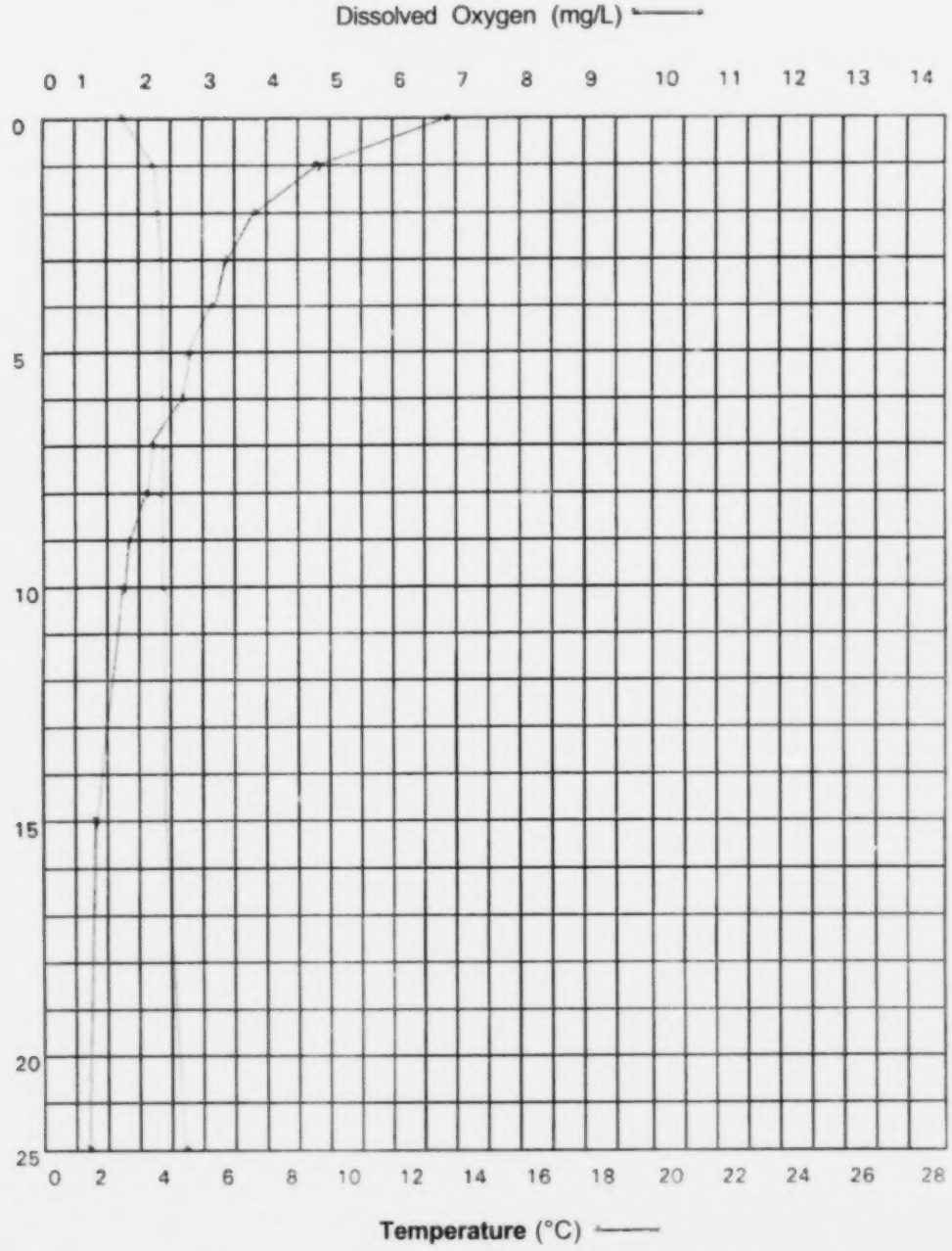
WINTER OXYGEN/TEMPERATURE DATA

DEPTH (m)	02 (mg/l)	TEMP (°C)
Surface	6.9	2.5
1.0	4.8	3.4
2.0	3.9	3.7
3.0	3.4	3.8
4.0	3.2	3.8
5.0	2.8	3.8
6.0	2.7	3.8
7.0	2.3	3.8
8.0	2.2	3.8
9.0	1.9	3.9
10.0	1.8	3.9
15.0	1.8	3.9
25.0	1.7	4.5
36.0	Bottom	

Lake: **TOBIN**

WINTER

DISSOLVED OXYGEN AND TEMPERATURE SERIES



Lake: **TOBIN**

NETTING RECORD

Mesh sizes experimental order: 25, 76, 51, 89, 38, 64 mm

NETTING SITE #1

Type:	Sinking monofilament		
Date Set:	August 28, 1989	Time:	0950 hrs
Date Lifted:	August 29, 1989	Time:	1100 hrs
Net Dimensions:	Length: 91.4 m	Depth:	2.4 m
Shallow End Mesh Size:	25 mm	Depth: Substrate:	3.0 m organics
Deep End Mesh Size:	64 mm	Depth: Substrate:	25.0 m organics

Comments:

All fish captured in the 25 mm and 76 mm mesh sizes. This is probably because the other mesh sizes were set below minimum oxygen requirements.

Lake: **TOBIN**

LAKE CATCH SUMMARY

SPECIES	NET SITE NO.				ANGLED	OTHER	TOTAL	NUMBER SAMPLED	NUMBER PRESERVED	SIZE RANGE (cm)
	1	2	3	4						
rainbow trout	2						2	2		35.2-46.3
redside shiner	111						111			8.9 - 12.9
lake chub	18						18			7.0- 11.2
coarse sucker	95						95			9.0- 37.5

Comments:

A large quantity of the redside shiners stomachs were swollen with large tapeworms

Minnow Traps:

BAIT: Sardines

#	HOURS	DEPTH (m)	SUBSTRATE	SPECIES	SIZE RANGE (cm)
1	24.00	1.5	organics	37 redside shiner 23 lake chub 1 coarse sucker	5.5- 11.6 6.9-7.9 10.4
2	24.00	1.5	organics	69 redside shiner 21 lake chub	4.8 - 9.3 4.9 - 9.0

Comments:

Blackspot disease noted on some redside shiners and lake chub.

Lake: Tobin

INDIVIDUAL FISH DATA

Date Captured: August 28, 29, 1989

Method of Capture: Sinking monofilament gillnet

M - Male
F - Female
? - Not Obvious

IMM - Immature
MG - Maturing
MT - Mature
GV - Gravid
SP - Spent
? - Not Obvious

EG - Egg
FR - Fin Ray
HD - Head
ML - Milt
OT - Otolith

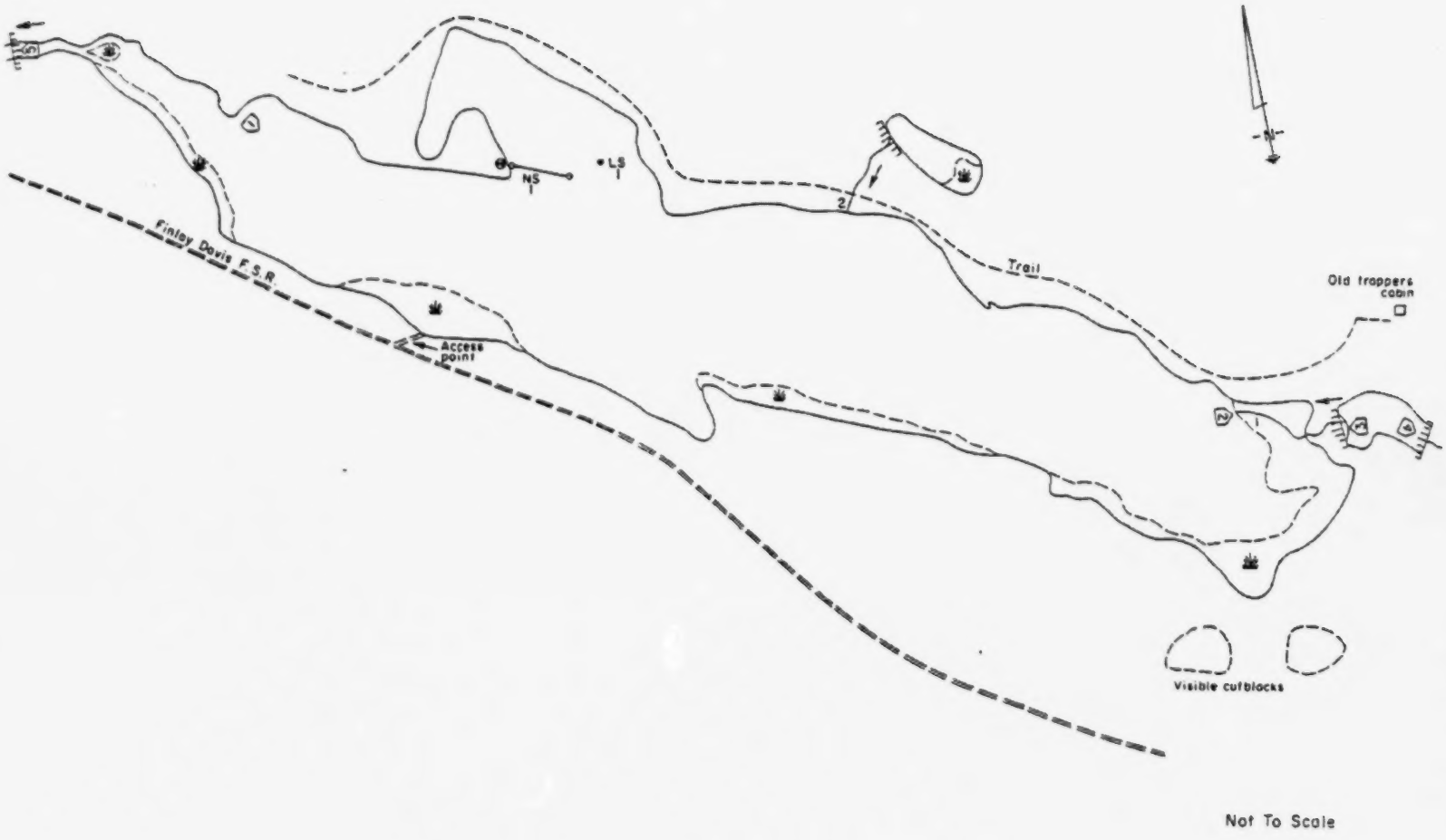
SC - Scale
ST - Stomach
TG - Fish Tag
WF - Whole Fish

SPECIES	Fork Length (cm)	Weight (grams)	Sex	Gonadal Maturity	Sample Type	Age (yr)	Stomach Contents				COMMENTS
							Plankton	Insects	Fish	Other	
rainbow trout	35.2	620	F	MT	sc	2+			lake chub	tapeworms	eggs reabsorbing
rainbow trout	46.3	1375	M	MT	sc	4+			unidentified fish parts		tapeworms in gut tapeworm nodules on stomach

AGE DETERMINATION COMPLETED BY:

D.A. Jesson, Peace Compensation Program, Prince George, B.C.

Tobin Lake



Not To Scale

Lake: **TOBIN**

PHOTOGRAPH DIRECTORY

Negative #	Plate #	Description
R12:23A,24A	1	Panoramic view of Tobin Lake, looking southeast, taken from west shore of lake.
R12:22A		Upstream view of inlet #1 marsh, taken approx. 75 m upstream from main lake body. Clearcut is visible to the right.
R12:18A		View of beaver dam #1, on inlet #1, taken approx. 600 m upstream from lake.
R12:19A		Upstream view of beaver dam #2, on inlet #1, taken approx. 700 m upstream from lake.
R13:4A		Downstream view of beaver dam (approx. 60 m in length by 1.5 m in height) at lake outlet, taken from lake. This dam controls current lake level.
R13:3A		Downstream view of outlet C., taken approx. 200 m downstream of lake. *Not shown on map.

Plate 1: Panoramic view of Tobin Lake, looking southeast, taken from west shore of lake.

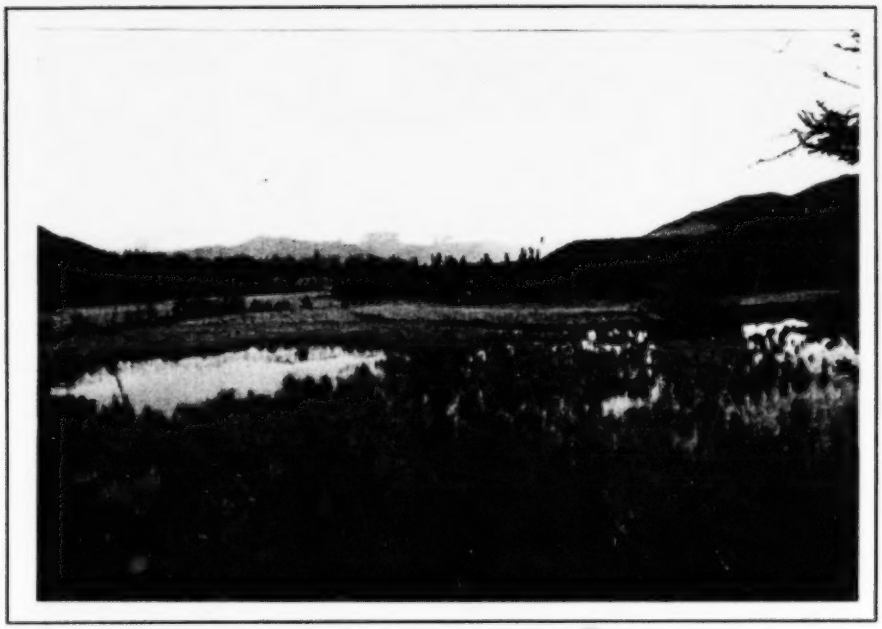


Plate 2: Upstream view of inlet #1 marsh, taken approx. 75 m upstream from main lake body. Clearcut is visible to the right.

Plate 3: View of beaver dam #1, on inlet #1, taken approx. 600 m upstream from lake.

Plate 4: Upstream view of beaver dam #2, on inlet #1, taken approx. 700 m upstream from lake.

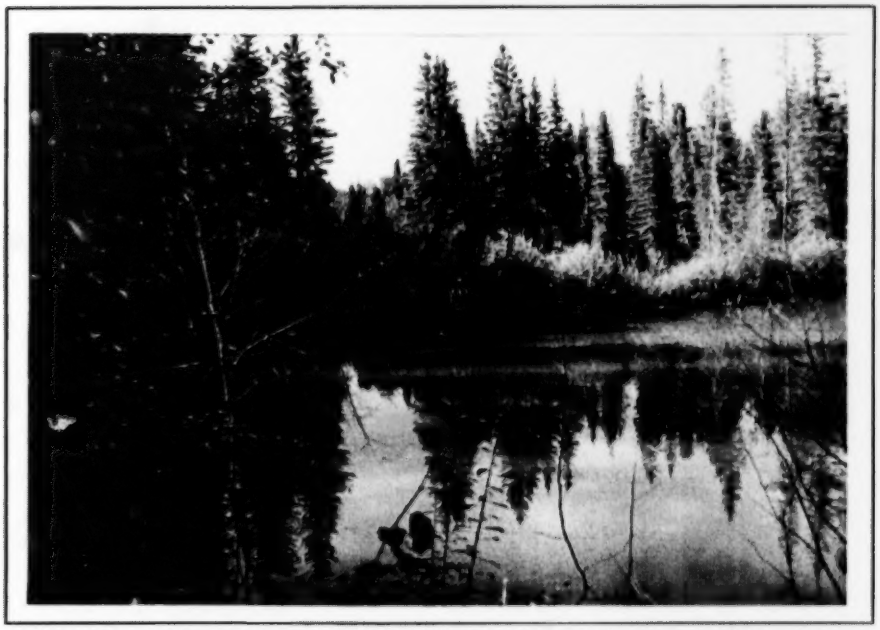


Plate 5: Downstream view of beaver dam (approx. 60 m in length by 1.5 m in height) at lake outlet, taken from lake. This dam controls current lake level.

Plate 6: Downstream view of outlet c., taken approx. 200 m downstream of lake. *Not shown on map.